

CLAIMS

What is claimed is:

1. A method of treating a subject having a disease state associated with a mucus secretion disorder comprising administering to the subject an effective amount of a chloride channel modulator.
2. The method of claim 1, wherein the animal is a mammal.
3. The method of claim 2, wherein the mammal is a human.
4. The method of claim 1, wherein the disease state is associated with mucus hypersecretion.
5. The method of claim 4, wherein the disease state associated with mucus hypersecretion is selected from the group consistin of ulcerative colitis and inflammatory bowel syndrome.
6. The method of claim 1, wherein the disease state is associated with mucus hyposecretion.
7. The method of claim 6, wherein the disease state associated with mucus hyposecretion is Crohn syndrome.
8. The method of claim 1, wherein the chloride channel modulator is a Ca^{2+} -activated Cl^- channel (CaCC) modulator.
9. The method of claim 8, wherein the CaCC modulator is a human CLCA1 (hCLCA1) modulator.
10. The method of claim 8, wherein the CaCC modulator is an antagonist.

11. The method of claim 8, wherein the CaCC modulator is an agonist.
12. A method of screening for a compound that modulates CaCC activity thereby affecting mucus secretion, the method comprising the steps of:
 - a) contacting CaCC, or fragment thereof, with the compound;
 - b) detecting CaCC activity.
13. The method of claim 12, wherein CaCC is:
 - a) expressed on a cell or tissue; or
 - b) immobilized on a solid support.
14. The method of claim 12, wherein the compound is:
 - a) an antagonist of CaCC activity;
 - b) an agonist of CaCC activity.
15. The method of claim 12, wherein CaCC is hCLCA1.
16. A compound identified by the method of claim 12.
17. The compound of claim 16 in conjunction with a pharmaceutically acceptable carrier.
18. A transgenic nonhuman animal comprising an altered CaCC gene.
19. The transgenic nonhuman animal of claim 18, wherein the animal underexpresses CaCC.
20. The transgenic nonhuman animal of claim 18, wherein the animal overexpresses CaCC.
21. The transgenic animal of claim 18, wherein the animal is a mouse.
22. A method of detecting expression of CaCC in a sample comprising:

- a) contacting the sample with a CaCC polynucleotide, or antibody which specifically binds a CaCC polypeptide, under conditions suitable for formation of a hybridization or an antibody:antigen complex; and
- b) detecting the level of CaCC expression in the sample.